bio-techne
TOCRIS

Print Date: Apr 9th 2025

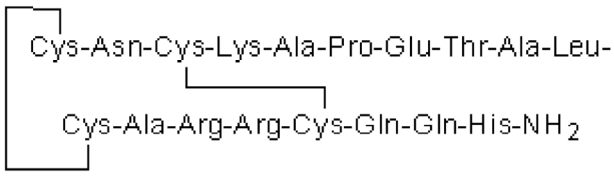
Certificate of Analysis

www.tocris.com

Product Name: **Apamin** **Catalog No.: 1652** **Batch No.: 17**
CAS Number: 24345-16-2 EC Number: 246-182-7

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{79}H_{131}N_{31}O_{24}S_4$
Batch Molecular Weight: 2027.34
Physical Appearance: White lyophilised solid
Counter Ion: TFA
Solubility: Soluble to 1 mg/ml in water
Storage: Store at -20°C
Peptide Sequence:



2. ANALYTICAL DATA

HPLC: Shows 97.9% purity
Mass Spectrum: Consistent with structure

3. AMINO ACID ANALYSIS DATA

Amino Acid	Theoretical	Actual	Amino Acid	Theoretical	Actual
Ala	3.00	2.89	Lys	1.00	1.01
Arg	2.00	1.96	Met		
Asx	1.00	1.01	Phe		
Cys	4.00	1.78	Pro	1.00	1.02
Glx	3.00	3.10	Ser		
Gly			Thr	1.00	0.88
His	1.00	1.02	Trp		
Ile			Tyr		
Leu	1.00	0.99	Val		

bio-techne.com
info@bio-techne.com
techsupport@bio-techne.com

North America
Tel: (800) 343 7475

China
info.cn@bio-techne.com
Tel: +86 (21) 52380373

Europe Middle East Africa
Tel: +44 (0)1235 529449

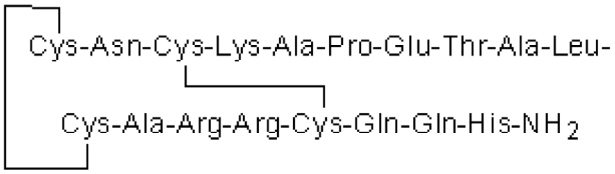
Rest of World
www.tocris.com/distributors
Tel:+1 612 379 2956

Product Name: **Apamin**
Catalog No.: 1652 **Batch No.: 17**
CAS Number: 24345-16-2
EC Number: 246-182-7

Description:
Apamin is a potent and highly selective inhibitor of small-conductance Ca^{2+}-activated K^+-channels ($K_{Ca}2$, SK) (IC_{50} values are 87.7 pM, 2.3 nM and 4.1 nM for $K_{Ca}2.2$, $K_{Ca}2.3$ and $K_{Ca}2.1$ channels, respectively). Reduces release and mRNA expression of inflammatory cytokines TNFα and IL-6. In models of kidney and cardiovascular disease apamin ameliorates tissue injury and dysfunction. Brain penetrant, blocks medium after-hyperpolarization in vitro, reduces neuroinflammation, increases microglia node contacts and Purkinje cell instananeous firing frequency.

Physical and Chemical Properties:
Batch Molecular Formula: $C_{79}H_{131}N_{31}O_{24}S_4$
Batch Molecular Weight: 2027.34
Physical Appearance: White lyophilised solid

Peptide Sequence:



Storage: Store at -20°C

Solubility & Usage Info:
Soluble to 1 mg/ml in water
This product is supplied in lyophilized form. It may appear as a solid, gel or film and be very hard to visualize. Solutions should be made by adding solvent directly to the vial. The vial should then be vortexed vigorously to ensure the product has completely dissolved.

Counter Ion: TFA

Stability and Solubility Advice:
Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).
Peptides in solution are much less stable than in lyophilized form. This is especially true for peptides whose sequences contain amino acids such Cys, Met,Trp, Asn, Gln, and N-terminal Glu.
Therefore we recommend storing peptides in solution for as short a time as possible. Avoid repeated freeze thaw cycles by dividing the peptide solution into aliquots and storing the aliquots at -20°C. Any portion of an aliquot unused after thawing should be discarded.
Peptides stored in solution can occasionally be susceptible to bacterial degradation. We recommend using sterile solutions or passing the peptide solution through a 0.2 µm filter to remove potential bacterial contamination whenever possible.

References:
Ronzano *et al* (2021) Microglia-neuron interaction at nodes of Ranvier depends on neuronal activity through potassium release and contributes to remyelination. Nat.Commun. ***12*** 5219. PMID: 34471138.

Kim *et al* (2020) Antioxidative, antiapoptotic, and anti-inflammatory effects of apamin in a murine model of lipopolysaccharide-induced acute kidney injury. Molecules ***25*** 5717. PMID: 33287398.

Stocker *et al* (2004) Matching molecules to function: neuronal Ca^{2+}-activated K^+ channels and afterhyperpolarizations. Toxicon ***43*** 933. PMID: 15208027.